

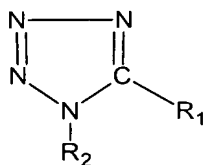
## APPENDIX

1. (previously presented) Gas-producing composition for gas generators, wherein said gas-producing composition comprises,

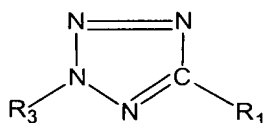
a) as fuel, at least one nitrogen-containing compound selected from the group consisting of tetrazole, triazole, triazine, cyanic acid, urea, and their derivatives or their salts;

b) as oxidant, a combination of zinc peroxide, potassium perchlorate and at least one nitrate.

2. (previously presented) Gas-producing composition according to claim 1, wherein said nitrogen-containing compound is one or more tetrazole derivatives of the formulae IA or IB:



IA



IB

wherein R<sub>1</sub> and R<sub>2</sub> or R<sub>3</sub> are identical or different and are hydrogen, hydroxy, amino, carboxy, an alkyl residue of 1-7 carbon atoms, an alkenyl residue of 2-7 carbon atoms,

an alkylamino residue of 1-10 carbon atoms, an aryl residue, an arylamino residue, a substituted aryl residue or a substituted arylamino residue, the substituted aryl residue or substituted arylamino residue being substituted by one or several substituents which are identical or different, and which are selected from the group consisting of an amino group, a nitro group and an alkyl group of 1-4 carbon atoms or a sodium, a potassium or a guanidinium salt of said tetrazole or tetrazole derivative.

3. (previously presented) Gas-producing composition according to claim 2, wherein  $R_1$ , is selected from the group consisting of hydrogen, amino, hydroxy, carboxyl, a methyl, ethyl, propyl, isopropyl, butyl, isobutyl, tert-butyl, n-pentyl, n-hexyl, n-heptyl, methylamino, ethylamino, dimethylamino, n-heptylamino, n-octylamino, n-decylamino, tetrazole, phenylamino, phenyl, nitrophenyl, and aminophenyl; and  $R_2$  or  $R_3$  is selected from the group consisting of hydrogen, a methyl, ethyl, phenyl, nitrophenyl, and aminophenyl radical.

4. (previously presented) Gas-producing composition according to claim 1, wherein the nitrogen-containing compound is a tetrazole derivative selected from the group consisting of 5-aminotetrazole; lithium, sodium, potassium, zinc, magnesium, strontium or calcium 5-aminotetrazolate; 5-aminotetrazole nitrate, sulphate, or perchlorate; 1-(4-aminophenyl)-tetrazole, 1-(4-nitrophenyl)-tetrazole, 1-methyl-5-dimethyl-aminotetrazole, 1-methyl-5-methylamino-tetrazole, 1-methyltetrazole, 1-phenyl-5-aminotetrazole, 1-phenyl-5-hydroxytetrazole, 1-phenyltetrazole, 2-ethyl-5-aminotetrazole, 2-methyl-5-aminotetrazole, 2-methyl-5-carboxyltetrazole, 2-methyl-5-methylaminotetrazole, 2-methyltetrazole,

2-phenyltetrazole, 5-(p-tolyl)tetrazole, 5-diallylaminotetrazole, 5-dimethylaminotetrazole, 5-ethylaminotetrazole, 5-hydroxytetrazole, 5-methyltetrazole, 5-methylaminotetrazole, 5-n-decylaminotetrazole, 5-n-heptylaminotetrazole, 5-n-octylaminotetrazole, 5-phenyltetrazole, 5-phenylaminotetrazole, bis-(aminoguanidine)-azotetrazole and diguanidinium-5,5'-azo-tetrazolate, 5,5'-bitetrazole and 5,5'-bi-1H-tetrazoleammonium compounds.

5. (previously presented) Gas-producing agent according to claim 1, characterised in that it contains:

as triazine derivatives, 1,3,5-triazine, as triazole derivatives, 1,2,4-triazole-5-one, 3-nitro-1,2,4-triazole-5-one, as cyanic acid derivatives, sodium cyanate, cyanuric acid, cyanuric acid esters, cyanuric acid amide (melamine), 1-cyanoguanidine, sodium dicyanamide, disodium cyanamide, dicyanodiamidine nitrate, dicyanodiamidine sulphate, and as urea derivatives biuret, guanidine, nitroguanidine, guanidine nitrate, aminoguanidine, aminoguanidine nitrate, thiourea, triaminoguanidine nitrate, aminoguanidine hydrogen carbonate, azodicarbonamide, tetracene, semicarbazide nitrate, as well as urethanes, ureides such as barbituric acid, and derivatives thereof.

Claim 6 (canceled)

Claim 7 (canceled)

8. (previously presented) Gas-producing agent according to claim 1, characterised

in that the ratio of the oxidants in the gas-producing mixture is 1:2:10, with a total content of 60% by wt.

9. (previously presented) Gas-producing composition according to Claim 1, wherein the ratio of the nitrogen-containing compound to the oxidants is balanced such that on combustion of the gas-producing composition, oxygen is formed in excess.

10. (previously presented) Gas-producing composition according to Claim 1, wherein the composition further contains a combustion moderator in an amount up to 8%.

11. (previously presented) Gas-producing composition according to Claim 1, wherein the composition further contains a combustion moderator selected from the group consisting of metals, metal oxides, metal carbonates, metal sulphides and mixtures thereof.

12. (previously presented) Gas-producing agent according to claim 1, characterised in that it contains as combustion moderators sulphur, ferrocene and its derivatives.

13. (previously presented) Gas-producing agent according to claim 1, characterised in that it contains, as an addition, substances which are capable of reducing the content of the noxious gases nitrogen oxides and/or carbon monoxide.

14. (previously presented) Gas-producing composition according to Claim 1, wherein said gas-producing composition further comprises an additional substance selected

from the group consisting of combustion moderators, noble metals, mixtures of these compounds, basically reacting substances selected from the group consisting of oxides, hydroxides, carbonates of alkali and alkaline earth metals, zinc, mixtures of these compounds, urea, guanidine compounds having  $\text{NH}_2$  groups selected from the group consisting of amidosulphonic acids, amido complexes, amides, and mixtures of these compounds.

15. (previously presented) Gas-producing agent according to claim 1, characterised in that the amount of additions used is about 10% by wt. in the charge and up to 75% by wt. in the outlet passages the amounts being based on the gas charge.

16. (previously presented) Gas-producing composition for gas generators, comprising nitrogen-containing compounds, wherein said gas-producing composition comprises,

a) as nitrogen-containing compound, a combination of aminotetrazole and calcium, magnesium or zinc salts, of aminotetrazole;

b) as oxidant, at least three compounds selected from the group consisting of peroxides, nitrates, chlorates and perchlorates; and

c) combustion moderators which are capable of influencing combustion and its rate by heterogeneous or homogeneous catalysis selected from the group consisting of zinc oxide and carbonates of zinc and calcium.

17. (previously presented) Gas-producing agent for gas generators, comprising nitrogen-containing compounds, characterised in that it contains:

a) as nitrogen-containing compound (fuel), urea, its salts, its derivatives and their salts, preferably biuret, guanidine, nitroguanidine, guanidine nitrate, aminoguanidine, aminoguanidine nitrate, thiourea, triaminoguanidine nitrate, aminoguanidine hydrogen carbonate, azodicarbonamide, dicyanodiamidine nitrate, dicyanodiamidine sulphate, tetracene and/or semicarbazide nitrate, as well as urethanes, ureides such as barbituric acid, and their derivatives;

b) as oxidants, at least two compounds from the group of peroxides, nitrates, chlorates or perchlorates, preferably sodium nitrate and potassium perchlorate; and

c) combustion moderators which are capable of influencing the combustion and its rate by heterogeneous or homogeneous catalysis, preferably zinc oxide and the carbonates of zinc and calcium.

18. (previously presented) Gas-producing agent according to claim 17, characterised in that it contains as oxidants and contains as combustion moderators:

peroxides of alkali and alkaline earth metals, zinc peroxide, and peroxodisulphates of the said elements and ammonium peroxodisulphate, or mixtures of these compounds;

ammonium nitrate, nitrates of alkali and alkaline earth metals, in particular lithium nitrate, or mixtures of these compounds;

halogen oxycompounds of alkali or alkaline earth metals or of ammonium, preferably potassium perchlorate or ammonium perchlorate, or mixtures of these compounds, substances or mixtures thereof which are capable of influencing the combustion and its rate by heterogeneous or homogeneous catalysis, the proportion

of these substances in the mixture amount up to 8%.

19. (previously presented) Method of producing a gas-producing agent for gas generators according to claim 1, characterised in that the nitrogen-containing compound or compounds (fuel) is/are mixed with the oxidants, the combustion moderators and optionally with further additions and the mixture is homogenized.

20. (previously presented) Method according to claim 20, characterised in that the gas-producing agent is compressed with the use of pressing aids, for example graphite, molybdenum sulphide, Teflon, talc, zinc stearate or boron nitride.

21. (previously presented) Method according to claim 20, characterised in that the blanks are coated.

22. (previously presented) Method according to claim 19, characterised in that a definite porosity of the blank is produced for control of the rate of combustion.

23. (previously presented) Life-saving system containing a gas-producing agent according to claim 1.

24. (previously presented) A method of use of the gas-producing agent according to claim 1 for the production of gas, comprising mixing elements (a), (b), (c) and optionally (d) of the gas-producing agent according to claim 1 to form a mixture, and homogenizing said mixture, wherein a gas is produced.

25. (previously presented) Gas-producing agent according to claim 16, characterised in that it contains as oxidants and contains as combustion moderators:

peroxides of alkali and alkaline earth metals, zinc peroxide, and peroxodisulphates of the said elements and ammonium peroxodisulphate, or mixtures of these compounds;

ammonium nitrate, nitrates of alkali and alkaline earth metals, in particular lithium nitrate, or mixtures of these compounds;

halogen oxycompounds of alkali or alkaline earth metals or of ammonium, preferably potassium perchlorate or ammonium perchlorate, or mixtures of these compounds, substances or mixtures thereof which are capable of influencing the combustion and its rate by heterogeneous or homogeneous catalysis, the proportion of these substances in the mixture amount up to 8%.

26. (previously presented) The gas-producing composition according to claim 1, further comprising additions which are capable of reducing the proportion of toxic gases.

27. (previously presented) The gas-producing composition according to claim 7, wherein said at least one nitrate is sodium nitrate or strontium nitrate.

28. (previously presented) The gas-producing composition according to claim 11, wherein the metals are selected from the group consisting of boron, silicon, copper, iron, titanium, zinc and molybdenum.



29. (previously presented) The gas-producing composition according to claim 14, wherein the noble metal is selected from the group consisting of palladium, ruthenium, rhenium, platinum, rhodium and oxides of the noble metals.

30. (previously presented) The gas-producing composition according to claim 16, wherein the aminotetrazone and salts of aminotetrazole are a combination of 5-aminotetrazole and salts of 5-aminotetrazole.

31. (previously presented) The gas-producing composition of Claim 1, wherein the nitrate is sodium nitrate or strontium nitrate.